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KEISLING PIEPER & SCOTT PLC
Suite 340
3739 Steele Blvd.
Fayetteville, AR 72703

EXAMINER	
IP, SIKYIN	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT WOOLLEY BRUNSON

Appeal 2009-000195
Application 09/844,526
Technology Center 1700

Decided: August 11, 2009

Before CHARLES F. WARREN, CATHERINE Q. TIMM and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision twice rejecting claims 25-30 (Office Action, mailed Jun. 27, 2005). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

STATEMENT OF THE CASE

The invention relates to "deep cryogenic tempering processes for brake components to produce improved molecular structures and enhanced structural properties." (Spec. [0001].) Claims 25 and 26 are illustrative of the subject matter on appeal, and are reproduced from the Claims Appendix to the Appeal Brief ("App. Br."), filed Oct. 6, 2006:

25. A method for deep cryogenic tempering of metallic brake rotors, the method comprising the steps of:

(a) determining a mass and cross sectional area of the brake rotors;

(b) placing the brake rotors at a temperature within a cryogenic processing chamber;

(c) cooling the brake rotors at a descent rate, the descent rate being a function of the mass and cross sectional area of the brake rotors, until the temperature of the brake rotors is approximately -300°F;

(d) maintaining the brake rotors temperature at -300°F for a stay time, the stay time being a function of the mass and the cross sectional area of the brake rotors;

(e) raising the temperature of the brake rotors to approximately 300°F at an ascent rate, the ascent rate being a function of the mass and the cross sectional area of the brake rotors;

(f) maintaining the temperature of the brake rotors at 300°F for a post temper time;

(g) lowering the temperature of the brake rotors to room temperature at a cool down rate;

(h) raising the temperature of the brake rotors to approximately 300°F at an ascent rate;

(i) maintaining the temperature of the brake rotors at 300°F for a post temper time; and

(g) lowering the temperature of the brake rotors to room temperature at a cool down rate.

26. The method of Claim 25, wherein steps (h), (i), and (g) are repeated for a third post temper time.

The Examiner relies on the following evidence to establish unpatentability (Examiner's Answer ("Ans."), mailed Feb. 5, 2008, 3):

Paulin	5,865,913	Feb. 2, 1999
Workman	5,447,035	Sep. 5, 1995

Appellant's acknowledged prior art admission (Spec. [0005])

Appellant requests review of the following grounds of rejection (App. Br. 8; *see* Ans. 2-3, § (6)):

1. claims 26 and 27 under 35 U.S.C. § 112, second paragraph, as indefinite; and

2. claims 25-30 under 35 U.S.C. § 103(a) as unpatentable over Paulin in view of Workman and Appellant's acknowledged prior art admission.

Rejection of claims 26 and 27 under
35 U.S.C. § 112, second paragraph, as indefinite

Appellant concedes that claims 26 and 27 are indefinite because claim 26 refers to an unrecited method step "(j)" in claim 25. (App. Br. 9.) In an effort to overcome the rejection, Appellant filed an Amendment on Nov. 21, 2005, together with a Notice of Appeal. As explained in the Amendment (App. Br., Evidence Appendix A (p. 8)), the recitation of a second step "(g)" in claim 25 instead of a step "(j)" is clearly a typographical error. However, because the Amendment was not entered (Advisory Action, mailed Dec. 6, 2005), we are constrained to affirm the Examiner's rejection.[1]

[1] The Examiner has advised that the "Amendment filed on November 21, 2005 would be entered to rectify this rejection if the 35 U.S.C. § 103 rejection is being reversed." (Ans. 4.)

Rejection of claims 25-30 under 35 U.S.C. § 103(a) as unpatentable over Paulin in view of Workman and Appellant's acknowledged prior art admission

ISSUE

Has Appellant shown reversible error in the Examiner's finding that Paulin inherently predetermines cross sectional area of a component and determines descent rate, stay time and ascent rate as a function of the cross sectional area?

We answer this question in the affirmative.

FINDINGS OF FACT ("FF")

1. According to the Specification, the use of deep cryogenic processing for improving the life and wear resistance of cutting tools and firearms was known in the art at the time of Appellant's invention. (Spec. [0003].) The Specification acknowledges Paulin's disclosure of "a specific deep cryogenic processing flow and processing profile" which is "specific to [] firearm application[s]." (*Id.*) However, the Specification states that Paulin's method "cannot be used for other applications due to the dependence of the process on the mass of the processing load and the materials treated." (*Id.*)

2. According to the Specification, the desired set of structural properties for brake components is unique due to the operating environment. (Spec. [0005] - [0006].) Appellant is said to have discovered that substantial improvements in the performance and service life of brake components can be achieved by taking into account cross sectional area, as well as material and mass of the brake components in determining the processing profiles for deep cryogenic tempering. (Abstract.)

3. Appellant contends that the Examiner reversibly erred in finding that Paulin discloses the method of appealed claim 25 because Paulin's method is based solely on mass and the materials treated. (App. Br. 12 (citing Paulin, col. 3, ll. 53-58); Rep. Br. 4 (citing Paulin, col. 3, ll. 50-67).) More specifically, Appellant argues that Paulin fails to disclose or suggest determining cross sectional area of a structure (claim 25, step (a)), and then determining descent rate, stay time and ascent rate as a function of the cross sectional area (claim 25, steps (c)-(e)). (*See id.*)

4. The Examiner maintains that Paulin inherently predetermines cross sectional area and employs heat treatment conditions as a function of cross sectional area. (Ans. 6 (citing Paulin, col. 3, ll. 53-58).) The cited portion of Paulin discloses a step of keeping firearm barrels and components in a cryogenic processor "for a predetermined period of time, dependent upon the total mass of the processing load and the materials treated." In support of this finding of inherency, the Examiner further relies on "general knowledge that mass is [the] product of volume and density. Volume equals cross-sectional area x length (height)." (Ans. 8.)

5. To refute the Examiner's finding of inherency, Appellant relies on a comparison between Figure 2 in each of Paulin, Workman, and the Specification. (App. Br. 17, 22, 27, 31, 36.) These figures illustrate the processing profiles (temperature versus time) used by Paulin, Workman, and Appellant. (Paulin, col. 2, l. 30; Workman, col. 2, ll. 5-6; Spec. [0016].) According to Appellant, a comparison of the figures establishes that the claimed method results in a much longer stay time at the lower and higher temperature points than the stay times in Paulin and Workman. (App. Br. 17.) Appellant contends that this longer stay time provides increased lattice

changes to the molecular structure of the brake component and allows for the temperature change to completely penetrate the material. (App. Br. 17.)

6. The Specification describes improvements to molecular structure of a brake component as including "a certain transformation from austenite to martensite for components having a steel material type." (Spec. [0012].) The improved molecular structure is said toe "enhance [] the structural properties of brake components." (*Id.*)

7. The Examiner responds to Appellant's comparison evidence as follows:

> "appellant's argument is immaterial because none of appealed claims recite specific 'stay time' or how to determine 'stay time'." (Ans. 9.)

8. The Specification identifies exemplary brake rotor compositions (Spec. [0026]) and describes specific processing profiles based on different combinations of brake rotor mass and cross section (Spec. [0027].) Appellant points out that "[b]rake rotors are typically a standard structure" (Rep. Br. 3), i.e., solid plate-like (Rep. Br. 4).

PRINCIPLES OF LAW

"The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995). Where the Examiner establishes a reasonable assertion of inherency and thereby evinces that a claimed process appears to be identical to a process disclosed by the prior art and/or that the products claimed by the applicant and disclosed in the prior art appear to be the same, the burden is properly shifted to the applicant to show that they are not. *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990); *In re Best*, 562 F.2d 1252, 1254-56 (CCPA 1977); *cf.*, *In re Robertson*, 169 F.3d 743, 745 (Fed.

Cir. 1999) (noting that inherency may not be established by probabilities or possibilities).

When rebuttal evidence is provided, the prima facie case dissolves, and the decision is made on the entirety of the evidence. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *In re Spada,* 911 F.2d at 708. All evidence of nonobviousness, including data in the specification, must be considered when assessing patentability, *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995) (citing *In re Margolis*, 785 F.2d 1029, 1031 (Fed. Cir. 1986)).

ANALYSIS

The Examiner found that Paulin inherently predetermines cross sectional area of a structure during the disclosed tempering process on the basis that cross sectional area can be calculated by knowing volume, density and length. (FF 4.) However, Appellant has provided an equally convincing argument that Paulin does not measure cross sectional area because Paulin's method is directed to treating firearms (barrels and components) having varying shapes for which cross sectional area cannot be readily determined. (*See* Rep. Br. 2-3; FF 1-3.) In this regard, we note that the Examiner has not directed us to, nor do we find, any disclosure in Paulin regarding measurements of volume, density and/or length.

The Examiner also found that the descent rate, stay time, and ascent rate used in Paulin's method are inherently a function of cross sectional area of the treated structures. (FF 4.) Appellant has attempted to rebut this finding by identifying evidence in the Specification which is said to establish a difference in Paulin's and Appellant's stay times and, therefore, a

difference in the prior art and claimed methods. (FF 5, 8; *see also*, FF 6.) The Examiner has not fairly considered this evidence. (FF 7.)

For the foregoing reasons, Appellant has convincingly shown that the Examiner's obviousness determination is not supported by a preponderance of the evidence. Therefore, we do not sustain the rejection of claims 25-30 under 35 U.S.C. § 103(a) as unpatentable over Paulin in view of Workman and Appellant's acknowledged prior art admission.

CONCLUSION

We affirm the rejection of claims 26 and 27 under 35 U.S.C. § 112, second paragraph, as indefinite, but reverse the rejection of claims 25-30 under 35 U.S.C. § 103(a) as unpatentable over Paulin in view of Workman and Appellant's acknowledged prior art admission.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED-IN-PART

tc

KEISLING PIEPER & SCOTT PLC
SUITE 340
3739 STEELE BLVD.
FAYETTEVILLE, AR 72703